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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,342	02/19/2002	Yukitoshi Kobayashi	030673-134	1387

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EXAMINER

HO, HA DINH

ART UNIT	PAPER NUMBER
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3681

DATE MAILED: 03/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/076,342

Applicant(s)

KOBAYASHI ET AL.

Examiner

Ha D. Ho

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MLW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 January 2005 and 02 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's Amendment filed on 01/05/04 has been entered.
2. This Office Action is responsive to Applicant's Amendment filed on 01/05/04. Claim 1 has been amended, and new claims 8-11 have been added accordingly. Claims 1-5 and 7-11 are currently pending.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi (JP 11-014656) in view of Kristjansson (US 6,258,007) and Carlson et al. (US 4,491,033).

Regarding claim 1, Horiuchi teaches an actuator comprising all the limitations recited in claim 1, including a housing (16); a motor (2); a wave gear reduction drive including a circular rigid internal gear (9), a circular flexible external gear (10), and a wave generator including a

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rigid cam plate (12) and a wave bearing (13); the flexible external gear (10) including a cylinder body portion (10a), an annular diaphragm (10b), and a boss (10c) provided with a through-hole; the motor (2) having a rotational hollow shaft (7) supported in the housing via a first bearing (i.e., the bearing on the right side of the wave bearing 13); a second bearing (23); and a rotor (5) attached to the rotational shaft (7).

Horiuchi shows a shaft (22), which is interpreted as an output shaft, mounted to the boss (10c) and rotatably supported in the housing via a cross roller bearing (19). Horiuchi does not show the shaft (22) that extends through the hollow shaft (7).

Kristjansson discloses a similar actuator (see Fig. 4) comprising a motor (109, 114) having a hollow rotational shaft (111) for driving the wave generator (113) in the harmonic drive (96), and an output shaft (117) mounted to a boss (i.e., the portion between the output shaft 117 and the flexspline 115), wherein the output shaft (117) extends through the hollow shaft (111).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the output shaft (22) of Horiuchi extended through the hollow shaft (7) in view of Kristjansson in order to permit control of parameters of input and output of the harmonic drive assembly at a convenient common end of that harmonic drive assembly (col. 6, lines 42-45).

Further, Horiuchi shows the second bearing (23) located on the left of the cross roller bearing (19) such that the bearings are not located in the order of the cross roller bearing, the second bearing, the wave bearing and the first bearing from a side of the wave gear reduction drive along the center axis of the housing.

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Carlson et al show an actuator (i.e., the wave generator assembly) including a bearing (22) corresponding to the cross roller bearing, a bearing (26) corresponding to the second bearing, a bearing (60) corresponding to the wave bearing, and a bearing (28) corresponding to the first bearing, wherein the bearing (26) is located on the right of the bearing (22) (i.e., in the order of 22, 26, 60 and 28 from a side of the wave gear reduction drive along the center axis of the housing).

It would have been an obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to relocate the bearings of Horiuchi in the order of the cross roller bearing, the second bearing, the wave bearing and the first bearing from a side of the wave gear reduction drive along the center axis of the housing in view of Carlson et al, since shifting the second bearing (23) to a different position (i.e., to the right of the cross roller bearing 19) would not modify the operation of the device. The courts have held that shifting location of parts would have been an obvious expedient (*In re Japikse*, 86 USPQ 70 (CCPA 1950)). Further, shifting the second bearing (23) to the right of the cross roller bearing (19) would have involved a mere change in the size of components, i.e., shortening of the left end portion of the input shaft (7), and lengthening of the right end portion of the output shaft (22). A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Regarding claim 2, an internal partition (i.e., the wall which is bolted to the flange 15) separates the housing into two spaces.

Regarding claim 3, the rigid internal gear (9) is integrally formed with a portion of the internal partition.

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Regarding claim 4, the flexible external gear (10) is of a cup shape, an annular bearing holder (22) is attached to the boss (10c).

Regarding claim 5, an encoder (110) is attached to a portion of the shaft (7).

Regarding claim 7, the modified actuator would have the output shaft accessible from both axial ends of the actuator.

Regarding claims 8 and 9, the rigid internal gear (9) and a stator (4, 6) are fixed to a common portion (15) of the housing (16).

Regarding claims 10 and 11, the modified actuator would have the cross roller bearing arranged axially external of and not in radial alignment with the second bearing.

### ***Response to Arguments***

5. Claim 1 has been amended to add new limitations, which have been considered but are moot in view of the new ground(s) of rejection.

### ***Communication***

6. Submission of your response by facsimile transmission is encouraged. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-93069326 for regular communications and (703) 872-9306872-9327 for After Final communications. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence not permitted by facsimile transmission, see M.P.E.P. 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check should not be submitting by facsimile transmission separately from the check. Responses submitted by facsimile transmission should

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include a Certificate of Transmission (M.P.E.P.. 512). The following is an example of the format the certification might take:

I hereby certify that this correspondence is being facsimile transmitted to  
the Patent and Trademark Office on \_\_\_\_\_

(Date)

Typed or printed name of person signing this certificate:

\_\_\_\_\_

(Signature)

If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and M.P.E.P.. 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Examiner Ho whose telephone number is (703) 305-0738. The examiner can normally be reached on Monday-Friday from 7:30 A.M. to 5:00 P.M. Eastern Standard Time. If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, Mr. Charles Marmor, can be reached at (703) 308-0830. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2168.

Ha Ho 3/11/04

Ha Ho  
Primary Examiner  
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